

REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-30 are presently active in this case. The present Amendment amends Claims 1-4, 8, 9, 16, 18-20 and 24.

In the outstanding Office Action, Claims 1-30 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 6,659,699. Claims 1-3, 11, 12, 14 and 15 were rejected under 35 U.S.C. § 102(b) as being anticipated by King Jr. (U.S. Patent No. 3,464,472). Claims 1, 4-8, 10 and 13 were rejected under 35 U.S.C. § 102(b) as being anticipated by Hurd et al. Claim 16 was rejected under 35 U.S.C. § 102(b) as being anticipated by Reynolds, the British patent to Huck and the Soviet patent to Mosc Aviation.

In response to the rejection under the judicially created doctrine of double patenting, Applicants herewith file a terminal disclaimer in compliance with 37 C.F.R. §1.321 thereby overcoming the double patenting rejection of Claims 1-30. For the record, Applicants note that the “filing of a terminal disclaimer simply serves the statutory function of removing the rejection of double patenting, and raises neither a presumption nor estoppel on the merits of the rejection.”¹

In order to clarify Applicant's invention, independent Claims 1 and 16 are amended. Claim 1 now specifies that the locking portion is configured to retain a layer of sealant and to squeeze-out excess sealant so as to obtain an adhesive and sealing layer on the surface. Claim 16 now recites a sealant forced to distribute and form a surface sealant layer while excess sealant is squeezed-out and specifies that the surface sealant layer forms an adhesive bond between the bolt shaft and the locking collar. These features find non-limiting support

¹ Quad Environmental Technologies Corp. v. Union Sanitary District, 946 F.2d 870, 874, 20 USPQ2d 1392, 1394-5 (Fed. Cir. 1991).

in the disclosure as originally filed, for example at page 4, lines 11-18 with corresponding Fig. 3. Therefore, the changes to Claims 1 and 16 are not believed to raise a question of new matter.²

Claims 2 and 18 are amended to correct minor informalities and Claims 9 and 24 are amended to be consistent with the change to Claims 1 and 16, respectively. Therefore, the changes to these claims are not believed to raise a question of new matter.

In response to the rejections of independent Claim 1 and dependent claims 2-8 and 10-15 under 35 U.S.C. § 102(b)³ and in light of the amendment to Claim 1, Applicants respectfully request reconsideration of these rejections and traverse the rejections as discussed next.

Briefly recapitulating, Applicants' invention, as recited in Claim 1, relates to a lockbolt including a bolt shaft having a locking portion with a plurality of grooves around a surface of the bolt shaft and including a plurality of peaks, at least some having a parallelogram shape and being disposed between the grooves and a bolt head on a first end of the bolt shaft. The locking portion is configured to retain a layer of sealant and to squeeze-out excess sealant so as to obtain an adhesive and sealing layer on the surface. As explained in Applicants' specification at page 4, line 25 – page 5, line 9 with corresponding Fig. 3, Applicants' invention improves upon conventional device because it allows at the same time to squeeze-out excess sealant and to keep some amount of sealant to form a sealant layer between the locking collar and the locking portion of the bolt shaft. This sealant layer provides an additional sealing and adhesive function without hindering mechanical swaging. The claimed invention thus leads to improved lockbolt.

² See MPEP 2163.06 stating that "information contained in any one of the specification, claims or drawings of the application as filed may be added to any other part of the application without introducing new matter."

³ Claim 9 was not rejected over the prior art.

Turning now to the applied prior art, the King Jr. patent discloses a locking bolt and a locking collar. However, the King Jr. patent fails to teach that the bolt is configured to retain a layer of sealant and to squeeze-out excess sealant so as to obtain an adhesive and sealing layer on the surface. On the contrary, the King Jr. patent explicitly teaches that the locking bolt includes a knurled portion that facilitates flow of sealant material so that it will not prevent proper locking of the collar on the bolt.⁴ In addition, the King Jr. patent fails to mention that the locking bolt is configured to retain some sealant to provide an adhesive and sealing layer when the lockbolt is used with a locking collar. Therefore, the King Jr. patent fails to teach or suggest every feature recited in Applicants' claims, so that Claims 1-3, 11, 12, 14 and 15 are patentably distinct over the King Jr. patent. Accordingly, Applicants respectfully traverse, and request reconsideration of, the rejections based on the King Jr. patent.⁵

The Hurd et al. patent discloses a flush fastener for panel assembly. Even if the disclosed flush fastener comprises knurled grooves, the Hurd et al. patent fails to teach that the fastener is configured to retain a layer of sealant and to squeeze-out excess sealant so as to obtain an adhesive and sealing layer on the surface. Indeed the Hurd et al. patent does not even mention the presence of any sealant. Therefore, the Hurd et al. patent cannot teach or suggest such a feature. Consequently, the Hurd et al. patent fails to teach or suggest every feature recited in Applicants' claims, so that Claims 1, 4-8, 10, and 13 are patentably distinct over the prior art. Accordingly, Applicants respectfully traverse, and request reconsideration of, the rejections based on the Hurd et al. patent.⁶

⁴ See King Jr., column 4, lines 67-70.

⁵ See MPEP 2131: "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference," (Citations omitted) (emphasis added). See also MPEP 2143.03: "All words in a claim must be considered in judging the patentability of that claim against the prior art."

⁶ See MPEP 2131.

In response to the rejection of independent Claim 16 under 35 U.S.C. § 102(b), Applicants respectfully request reconsideration of this rejection and traverse the rejection as discussed next.

Briefly recapitulating, Applicants' invention, as recited in Claim 16, relates to a lockbolt system including a bolt shaft with a bolt head on a first end of the bolt shaft and a locking collar. The bolt shaft has means for engaging the locking collar with the bolt shaft such that the locking collar is securely deformed in a locking manner. The sealant is thereby forced to be distributed and to form a surface sealant layer on the bolt shaft. In addition, excess sealant is squeezed-out and the surface sealant layer forms an adhesive bond between the bolt shaft and the locking collar.

Turning now to the applied prior art, the Reynolds patent discloses a two piece fastener including a pin and a collar. The collar is adapted to be at least partially swaged onto the pin. In addition, the collar includes a plurality of relief grooves on its end face whereby the sealant material located between the pin and the collar can be exhausted. However, the Reynolds patent fails to teach that the sealant forms a surface sealant layer on the bolt shaft that forms an adhesive bond between the bolt shaft and the locking collar. On the contrary, the Reynolds patent states that the sealant material may escape through the relief grooves during the installation, thereby preventing a hydrostatic lock in the driven fastener and assuring a fastening of proper and consistent high strength.⁷ Reference numeral 15 in Figs. 1 and 2 refer to the sealant. As can be observed between Fig. 1 and Fig. 2, the sealant has been completely removed from the space between the pin 5 and the collar 6 and is then located between the members 1 to be fastened and the collar 6. Moreover, in Fig. 3 the sealant 15 is removed from between the member 1 to be fastened and the collar 6 to the periphery of the collar 6. Therefore, there is no surface sealant layer viewable on the pin. Consequently, the

⁷ See Reynolds, column 1, lines 53-60.

Reynolds patent fails to teach or suggest every feature recited in Applicants' Claim 16, so that Claims 16-30 are patentably distinct over the prior art. Accordingly, Applicants respectfully traverse, and request reconsideration of, the rejection of Claim 16 based on the Reynolds patent.⁸

The British patent Huck discloses an improvement for rivet-like fasteners to fasten for instance two plates. A two-part fastener includes a pin having a head and a collar adapted to be inserted over the pin. The pin further includes grooves in which the collar metal flow during the swaging operation. The Huck patent also states that in some cases a sealant is used between the two plates and, when the pin is introduced between the openings in the plates, the sealant fills partially or completely the grooves, preventing the effective flowing of the collar. Accordingly, the pin is provided with a spiral that extends longitudinally of the pin about the groove portion. "Most of the sealant . . . is thus squeezed out of the groove through the relief groove (...) the only sealant remaining in the end groove 34 being that at the bottom of the groove which the collar material does not displace."⁹ However, the Huck patent fails to teach that the surface sealant layer forms an adhesive bond between the bolt shaft and the locking collar. Indeed, the Huck sealant remains only "in the bottom of the groove" so that this sealant does not meet the claimed surface sealant layer nor the claimed adhesive bond. Furthermore, only certain sealants are able to form an adhesive bond at all (i.e. sealants that cure or harden rather than remaining viscous or pastey), and only some of those sealants are able to adhesively bond onto the metal material of the locking collar and the lockbolt. Therefore the Huck patent does not inherently teach the claimed step of forming a seal and an adhesive bond "because it fails to show that the alleged inherent characteristic necessarily flows from the teachings of the applied prior art."¹⁰ Furthermore, none of the

⁸ See MPEP 2131.

⁹ See Huck, page 2, line 124 – page 3, line 2.

¹⁰ See MPEP 2112 (emphasis in original) (citation omitted). See also same section stating that "[t]he fact that a

other references of record teaches or suggests these features in combination with the other features recited in Claim 16. Therefore, the Huck patent fails to teach or suggest every feature recited in Applicants' Claim 16, so that Claims 16-30 are patentably distinct over the prior art. Accordingly, Applicants respectfully traverse, and request reconsideration of, the rejection of Claim 16 based on the Huck patent.¹¹

The Soviet patent to Mosc Aviation discloses a rivet for making a sealed joint that consists of a shank with a ring and a sealing compound. The end of the ring has a recess containing the sealing compound, which is contained in microcapsules covered with a protective film so that, when the joint is tightened, the sealing compound fills at the clearance, providing a seal joint without the use of sealing substances between the workpieces or on the top of the joint component.¹² Therefore, the Mosc Aviation patent does not teach that excess sealant is squeezed out nor that the surface sealant layer forms an adhesive bond between the bolt shaft and the locking collar. Consequently, the Mosc Aviation patent fails to teach or suggest every feature recited in Applicants' Claim 16 so that Claims 16-30 are patentably distinct over the prior art. Accordingly, Applicants respectfully traverse, and request reconsideration of the rejection of Claim 16 based on the Soviet patent to Mosc Aviation.¹³

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in

certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic," (emphasis in original). See also In re Robertson, 49 USPQ2d 1949, 1951 (Fed. Cir. 1999) ("[t]o establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill,'" citing Continental Can Co. v. Monsanto Co., 948 F2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991); and "[i]nherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient," Id. at 1269 (citation omitted)).

¹¹ See MPEP 2131.

¹² See the Soviet patent to Mosc Aviation, abstract.

¹³ See MPEP 2131.

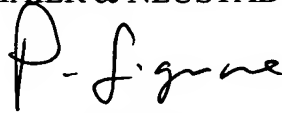
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Reply to Office Action of June 24, 2004

condition for formal Allowance. A Notice of Allowance for Claims 1-30 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicant's undersigned representative at the below listed telephone number.

Respectfully submitted,

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